

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P907718

Luminaire Tested: DFN2DIP-4P3F0-060D040US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907718
REPORT IS A COMBINATION OF REPORTS P899057 AND P895917
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D040US840-FLLFLL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

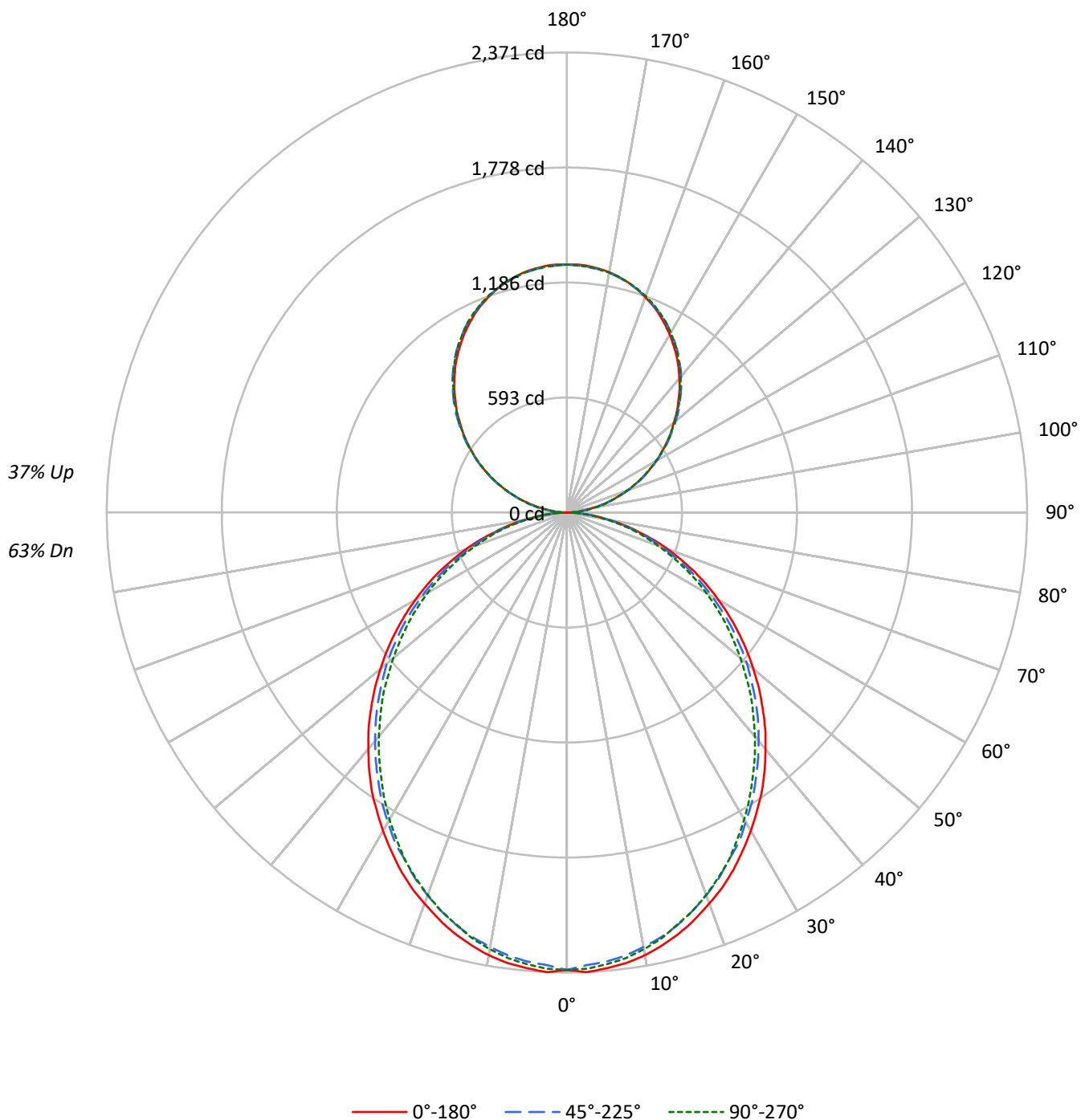
Lumens per Lamp: N/A
Luminaire Lumens: 9573.5 lumens
Efficiency: N/A
Efficacy: 104.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 91.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	110	110	110	110	103	103	103	103	90	90	90	79	79	79	68	68	68
1	101	96	92	89	94	90	87	84	79	77	74	69	67	66	60	59	57
2	92	84	78	72	86	79	73	69	70	65	62	61	58	55	53	50	48
3	84	74	66	60	78	70	63	58	61	56	52	54	50	46	47	44	41
4	77	66	57	51	71	62	54	49	55	49	44	48	43	40	42	38	35
5	70	58	50	44	66	55	48	42	49	43	38	43	38	35	38	34	31
6	65	53	44	38	61	50	42	37	44	38	33	39	34	30	34	30	27
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	31	27	24
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22
9	52	40	32	27	49	38	30	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	35	28	23	31	25	21	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2687	2687	2687
5°	2689	2648	2666
10°	2666	2610	2629
15°	2625	2565	2572
20°	2570	2504	2514
25°	2516	2431	2446
30°	2448	2363	2360
35°	2384	2282	2269
40°	2305	2201	2183
45°	2226	2120	2095
50°	2140	2035	1993
55°	2049	1936	1898
60°	1947	1819	1790
65°	1835	1697	1663
70°	1692	1549	1526
75°	1495	1371	1398
80°	1257	1144	1155
85°	884	758	757

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2226 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.9	2.3
10°-20°	624.4	6.5
20°-30°	917.5	9.6
30°-40°	1065.7	11.1
40°-50°	1064.4	11.1
50°-60°	928.1	9.7
60°-70°	686.1	7.2
70°-80°	388.2	4.1
80°-90°	106.1	1.1
90°-100°	79.1	0.8
100°-110°	251.2	2.6
110°-120°	429.8	4.5
120°-130°	565.3	5.9
130°-140°	634.5	6.6
140°-150°	622.2	6.5
150°-160°	522.0	5.5
160°-170°	346.2	3.6
170°-180°	121.0	1.3
0°-30°	1763.8	18.4
0°-40°	2829.5	29.6
0°-60°	4821.9	50.4
0°-90°	6002.2	62.7
90°-120°	760.1	7.9
90°-150°	2582.2	27.0
90°-180°	3571.0	37.3
0°-180°	9573.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2358	2358	2358	2358	2358	
5°	2358	2349	2324	2342	2337	224
15°	2244	2231	2201	2210	2199	632
25°	2031	2013	1975	1979	1975	935
35°	1752	1730	1694	1680	1668	1094
45°	1426	1410	1376	1351	1342	1101
55°	1079	1066	1038	1011	1000	965
65°	728	714	692	671	660	720
75°	381	376	365	351	356	406
85°	93	91	88	82	79	104
90°	1	14	38	35	37	9
95°	56	67	69	69	67	63
105°	232	235	237	239	239	245
115°	431	438	436	434	431	427
125°	627	637	634	630	629	561
135°	812	823	826	825	822	627
145°	985	993	999	1000	996	616
155°	1126	1130	1133	1138	1135	519
165°	1226	1224	1224	1232	1227	346
175°	1275	1272	1270	1278	1271	121
180°	1278	1278	1278	1278	1278	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2357.6	2357.6	2357.6	2357.6	2357.6
2.5°	2371.4	2360.1	2335.0	2357.6	2353.3
5°	2357.6	2348.7	2323.7	2341.8	2337.4
7.5°	2341.8	2328.3	2303.3	2321.6	2317.0
10°	2317.0	2301.2	2273.9	2292.0	2285.2
12.5°	2282.9	2269.4	2242.2	2253.5	2249.0
15°	2244.3	2230.9	2201.3	2210.5	2199.2
17.5°	2196.8	2183.3	2153.7	2164.9	2153.7
20°	2144.6	2131.1	2099.3	2106.1	2097.2
22.5°	2092.6	2072.1	2042.6	2042.6	2038.0
25°	2031.2	2013.3	1974.7	1979.0	1974.7
27.5°	1963.2	1947.3	1917.9	1911.3	1900.0
30°	1895.4	1877.0	1843.2	1836.4	1827.3
32.5°	1822.7	1809.3	1772.9	1759.2	1750.1
35°	1752.5	1729.9	1693.5	1679.8	1668.5
37.5°	1673.1	1652.6	1616.4	1600.4	1589.1
40°	1591.5	1573.3	1537.0	1516.8	1507.6
42.5°	1512.2	1493.9	1457.8	1435.0	1421.5
45°	1426.1	1410.2	1376.0	1351.3	1342.1
47.5°	1342.1	1326.3	1290.0	1265.0	1251.4
50°	1253.6	1242.3	1210.6	1178.8	1167.5
52.5°	1167.5	1151.7	1122.3	1097.3	1081.5
55°	1079.2	1065.5	1038.3	1011.2	999.9
57.5°	990.8	979.5	949.9	922.7	913.5
60°	902.2	893.3	861.6	836.6	829.8
62.5°	816.1	800.2	777.6	755.0	745.9
65°	727.8	714.2	691.6	671.1	659.7
67.5°	637.1	625.6	605.4	589.6	580.4
70°	553.2	544.1	523.6	507.8	498.9
72.5°	467.1	458.0	446.7	430.8	424.0
75°	380.7	376.5	364.9	351.4	356.0
77.5°	303.8	294.7	290.0	283.4	276.6
80°	226.8	224.4	219.8	213.1	208.5
82.5°	154.2	154.2	152.0	142.9	142.9
85°	92.8	90.7	88.5	81.5	79.4
87.5°	40.9	36.4	31.7	25.0	22.6
90°	1.1	13.8	37.8	35.4	36.6
92.5°	23.8	32.3	33.5	34.6	34.6
95°	56.2	67.1	69.0	69.0	67.1
97.5°	93.6	103.6	107.9	107.9	107.9
100°	136.7	145.6	148.7	148.7	147.5
102.5°	182.2	188.7	193.0	194.1	193.0
105°	231.9	234.9	237.2	239.1	239.1
107.5°	281.1	285.8	285.8	286.5	281.1
110°	328.9	335.1	335.1	335.1	332.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	380.5	387.1	385.9	382.8	380.5
115°	431.3	437.6	435.6	434.4	431.3
117.5°	481.8	490.3	484.9	481.8	478.8
120°	532.7	541.1	532.7	532.7	529.2
122.5°	578.9	589.7	584.3	581.2	578.9
125°	627.4	637.0	634.0	630.5	629.3
127.5°	674.8	686.7	682.5	677.8	674.8
130°	719.0	733.0	731.0	728.7	724.5
132.5°	768.7	779.5	780.3	774.9	771.8
135°	811.5	823.4	825.8	824.6	821.5
137.5°	859.3	868.9	870.8	870.0	865.5
140°	901.2	910.9	916.3	916.3	912.0
142.5°	944.4	954.0	957.0	958.3	954.0
145°	985.2	992.9	999.1	1000.3	996.0
147.5°	1021.8	1031.4	1036.0	1037.9	1033.7
150°	1059.6	1066.1	1070.4	1073.8	1070.4
152.5°	1093.1	1099.5	1105.0	1109.2	1105.0
155°	1126.5	1129.6	1133.1	1138.5	1135.0
157.5°	1155.5	1157.7	1159.6	1167.4	1162.0
160°	1181.2	1183.6	1184.7	1191.2	1186.6
162.5°	1205.1	1205.1	1206.3	1213.6	1208.2
165°	1225.6	1224.4	1224.4	1232.0	1226.7
167.5°	1244.1	1240.5	1240.5	1248.3	1242.8
170°	1257.9	1254.8	1253.6	1261.3	1254.8
172.5°	1267.5	1264.5	1263.2	1271.0	1264.5
175°	1275.3	1272.1	1269.8	1277.5	1271.0
177.5°	1279.5	1276.4	1274.0	1280.6	1274.0
180°	1277.5	1277.5	1277.5	1277.5	1277.5

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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	11.77	12.76	12.61	13.62	14.70	11.32	12.31	12.16	13.17	14.25
	3H	13.43	14.32	14.28	15.19	16.30	12.94	13.83	13.79	14.70	15.81
	4H	14.02	14.86	14.89	15.74	16.85	13.53	14.37	14.40	15.25	16.36
	6H	14.43	15.20	15.31	16.08	17.21	13.93	14.70	14.81	15.58	16.71
	8H	14.53	15.27	15.42	16.17	17.30	14.03	14.77	14.92	15.67	16.80
	12H	14.58	15.29	15.48	16.18	17.34	14.07	14.78	14.97	15.67	16.83
4H	2H	12.24	13.08	13.11	13.96	15.07	11.88	12.72	12.76	13.60	14.72
	3H	14.11	14.81	15.00	15.72	16.85	13.70	14.40	14.59	15.31	16.44
	4H	14.83	15.47	15.72	16.37	17.53	14.40	15.04	15.30	15.95	17.10
	6H	15.35	15.90	16.26	16.83	17.99	14.91	15.46	15.82	16.40	17.55
	8H	15.50	16.01	16.41	16.94	18.11	15.06	15.57	15.97	16.50	17.67
	12H	15.57	16.04	16.51	16.98	18.16	15.12	15.59	16.06	16.53	17.71
8H	4H	15.03	15.55	15.94	16.47	17.64	14.65	15.17	15.57	16.09	17.26
	6H	15.66	16.09	16.60	17.05	18.22	15.28	15.70	16.22	16.67	17.84
	8H	15.88	16.26	16.83	17.21	18.40	15.49	15.86	16.44	16.82	18.01
	12H	16.01	16.35	16.97	17.30	18.53	15.60	15.94	16.56	16.89	18.12
12H	4H	15.02	15.49	15.95	16.43	17.61	14.65	15.12	15.59	16.06	17.24
	6H	15.69	16.07	16.64	17.03	18.21	15.32	15.70	16.27	16.65	17.84
	8H	15.93	16.27	16.89	17.22	18.46	15.55	15.89	16.51	16.84	18.07